SO YOU ARE HAVING A BAD DAY: GENDER, GOAL ORIENTATION AND IN-COMPETITION ATTRITION RATE IN COMPETITIVE CYCLISTS

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ABSTRACT

Cycling is an endurance sport defined by races that require long intensive efforts. In this atmosphere, athletes who experience a self-proclaimed "bad day" may be inclined to drop out of a competition instead of complete it. Previous research has shown that male athletes demonstrated higher levels of ego orientation and extrinsic motivation while female athletes demonstrated higher levels of goal orientation and intrinsic motivation (White & Duda, 1994). The current study examines the relationship of gender, goal orientation and participation motivation to in-competition drop-out rates among competitive cyclists. Specifically, it was hypothesized that the decision to prematurely drop out of a race is influenced by an athlete's goal orientation (ego or task) and their intrinsic and/or extrinsic motivations for participating. Results demonstrated higher in-competition drop-out rates among male cyclists than that of female cyclists. Completion rates were also assessed in relation to goal orientation and participation motivation and demonstrated lower levels of ego orientation, higher levels of task orientation, and higher levels of intrinsic motivation among female cyclists in comparison to male cyclists.

DEDICATION

I would like to dedicate this project to my husband Mark. Thanks for being my sanity. And to all the competitive cyclists in the world; you have fuel my passion for this research.

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I would like express my sincerest gratitude to all the people who made my completion of this thesis possible. First, my eternal gratitude goes to Dr. Bart Weathington for all your time and expertise; without your calm and collected demeanor I would have never made it through this process. A huge thank you also goes to Dr. David Ross for your inspiration to follow my heart; without you I would never have gotten here, and Dr. Mike Johnson; for showing me what is possible. Finally, I would like to thank my family. First to my parents, who have always believed in me and been my biggest supporters, thank you for teaching me that believing in myself was my biggest asset. And last but definitely not least my husband Mark, who put up with long hours, late nights, and did all the driving for two years in order for me to realize my dreams.

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CHAPTER 1

INTRODUCTION AND BACKGROUND

The sport of cycling is an extremely grueling endurance competition. Athletes who excel are able to dissociate from the pain and suffering of racing at an intense aerobic effort for hours at a time (Lewis, 1999). When a cyclist succeeds this physical performance and effort is accompanied by achievement of their goals, sometimes in the form of a race win, often times in the form of personal performance goals. Often however, the cyclist does not achieve the level of performance they desire and their goals are not met. For one reason or another, the athlete is having a "bad day" and the ability to perform at the desired level is not within reach. In this situation, a competition may transform from a race for the win to a struggle to finish. Amongst cyclists this is often referred to as a "death march." During a bad race, the decision becomes whether to continue on and suffer through the pain with no hope of a reaching their pre-existing goals, or to quit. Some athletes choose to simply quit. Others push on and completion becomes the new goal. The decision to continue to push on in spite of the pain is related to both the goal orientation and participation motivation of the athlete (Lochbaum & Roberts, 1993) as well as, potentially, the athlete's gender (Hanrahan & Cerin, 2009). Accordingly, this study will build on the existing empirical literature to further examine the relationships between goal orientation, gender, and race attrition.

There is virtually no current research on in-competition dropout rates among individual-sport endurance athletes. Individual sport athletes and team sport athletes demonstrate significant

differences in goal orientation and participation motivation (Colley, Roberts, & Chipps, 1985). The bulk of the existing research is on team sport athletes. This becomes problematic in that the demands of individual sports and team sports are oftentimes very different. The characteristics, personality, and overall approach of an athlete varies with the type of sport they play (Colley, Roberts, & Chipps, 1985). Additionally, sport specific traits and differences are often ignored. For example, there is very little research specifically about cyclists in any area of sport psychology. Compounding this gap in the literature, there is some evidence that men and women approach competition differently (Hammermeister & Burton, 2004) and this may predict dropout rates and decisions. Examining the attrition rate of both male and female cycling athletes may yield some insight into ways to help avoid competition drop out. Knowing what makes an athlete give up or continue may be an invaluable tool for both athlete and coach. This has implications in the arena of sport psychology and athletic performance not just for cycling, but for all endurance sports.

Motivational Theories and Individual Differences

Goal Orientation

Goal orientation, in an athletic context, is defined by Cox (2007) as "the different ways that athletes approach and think about achievement situations" (p. 144). It is an all-encompassing characteristic possessed by the individual that drives the motivations and actions of that individual as an athlete. Correspondingly, everything an athlete does is influenced by his or her goal orientation. All athletes have a goal orientation, which changes and develops over time and with the progression of skill in the athlete's career (Duda, Keller, & White, 1998). The desire to excel, the drive to win, and the focus it takes to practice and master skills are a few of the many characteristics that are driven by an athlete's goal orientation. All aspects of competition are

controlled and manipulated according to what type of goal orientation the particular athlete possesses.

Athletic goal orientation takes one of two broad forms; ego orientation or task orientation. Athletes with high ego orientation compete primarily for the satisfaction of winning (Cox, 2007; White, Duda, & Keller, 1998). This type of athlete is driven by the urge to be better than the competition. Accordingly, success is externally directed and primarily determined by defeating other individuals. If winning, or at least meeting that external goal, is not an option, there is, correspondingly, no incentive to compete (Fox, 2008). Athletes with high task orientation, on the other hand, are driven by the desire for mastery of skills and a mastery of their sport (Duda, Keller, & White, 1998; White & Duda, 1994).Winning is important but it is not what determines success. Instead, improving skills, mastering the demands of the sport, and performing to the athlete's personal best are the characteristics that define success. Even during a self-perceived poor competitive performance, a task oriented athlete may find success if certain tasks are mastered (Fox, 2008). Goal orientation is not an either/or classification but rather two separate continua, with athletes exhibiting either high or low characteristics of each. Typically, being high in one type of goal orientation translates to a lower orientation in the other, although that is not a requirement. Most athletes fall somewhere between the extremes of a complete ego orientation and a complete task orientation (Duda, Keller, & White, 1998; White & Duda, 1994).

Goal orientation has been linked to various performance oriented situations both within the world of athletics and in other realms. For instance, in an academic setting, Nicholls, Patashnick, and Nolen (1985) demonstrated that students with a high task orientation for learning were much more likely to cite the reason for schooling as a way to learn about the world and expand their knowledge, whereas students with a higher ego orientation regarded schooling as a

way to perform well in order to obtain good jobs and success in the world. These responses are congruent with the feedback provided by many young athletes regarding the reasons for their participation in their sport of choice. White, Duda, and Keller (1998) examined the relationship between goal orientation and the athlete's perception of the purpose of their participation in sports among a group of high school athletes. They found that the more task oriented the athlete, the more likely they were to cite personal mastery and cooperative skill development as a result of participation. Conversely, the more ego oriented the athletes were, the more they felt that sport participation should increase their popularity among peers and build a competitive spirit that could translate into eventual career success. Both of these studies illustrate the differences in perception of performance goals and success between the high task oriented and the high ego oriented individual.

It is important to note that although task and ego orientation are most often examined in terms of this win and lose mentality, it is possible to have ego oriented competitive success without accomplishing a win (McAuley & Tammen, 1989). Merely performing at a high level against superior competition and finishing a competition well may be enough of a personal competitive success to qualify, even if an outright win is not achieved. Conversely, winning a race when there are not competitive opponents would not satisfy an individual with high ego orientation, even though there was apparent competitive success (McAuley & Tammen, 1989). This theory of goal orientation is conceptualized by subjective and objective goal setting. When an athlete sets a subjective goal it is a based on personal mastery of their sport (task orientation). Conversely, an objective goal is a goal based on performance expectations and external results (ego orientation). The type of goal setting that is used determines the athlete's definition of competitive success oftentimes more than the actual result which is achieved during the

competition. For example, a subjective mastery goal of a specific skill execution during competition even in the face of defeat is defined as a success to the task oriented individual whereas an objective win over a weak competitor may be perceived as a failure for the ego oriented individual.

Competitive goals are usually broadly defined in terms of competition "success" and "failure" but goals themselves can be defined in terms of both athletic competence and competitive success (Vealy, 1986). One caveat to this is that most athletes, although outwardly willing to record a competence goal as a success, tend to see failure if there is not also an accompanying performance goal achieved. Only an athlete with extremely high task orientation and low ego orientation will see success solely in terms of competence (Vealy, 1986). In order to gain a complete understanding of what drives the individual to compete, it is important to keep these types of theoretical approaches in mind when evaluating athletes on not only their goal orientation but also their motivations for participation.

Performance Motivation

Whereas goal orientation is an all-encompassing characteristic of an athlete's way of approaching sport, the motivation for an athlete to participate in their particular sport is the driving force behind how they participate (Franken & Brown, 1995). Understanding this motivation is pivotal in influencing and understanding the results of participation (Mallet et al., 2007). Participation motivation is defined by the characteristics of amotivation, intrinsic motivation, and extrinsic motivation. Amotivation is characterized by a complete lack of motivation. This is typically not seen in athletes as they tend to cease participation instead of continue in their sport when this occurs (Ryan & Deci, 2000). Intrinsic motivation in competition is defined by the individual's choice to participate in order to feel challenged and efficacious

(Fredrick-Recascino & Schuster-Smith, 2003). Conversely, extrinsic motivation is defined by athletes participating for reasons which are not freely chosen. These reasons can be things such as recognition, results, and the expectations of others (Fredrick-Recascino & Schuster-Smith, 2003). Additionally, extrinsic motivation is multidimensional and is further divided into different levels: external regulation, introjected regulation, identified regulation, and integrated regulation. These levels represent a continuum of self-regulation which spans from complete external regulation to almost completely internal regulation (Ryan & Deci, 2000). The more internally regulated the motivation, the closer the athlete is to an intrinsic motivation for participation. An athlete does not exhibit complete internal regulation of their motives for participation in their sport until they are intrinsically motivated (Figure 1).

Extrinsic Motivation				**Intrinsic Motivation**
External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation	
<--Continuum -->				

Figure 1

An illustration of the basic continuum theory of participation motivation in sport

At the far end of the spectrum of extrinsic motivation is external regulation. An externally regulated athlete is competing for reasons which are directly externally controlled. This is the athlete who is there to win because anything else is a failure. The athlete's goals are completely set and controlled by others such as their coach, family, teammates, etc. An athlete with introjected regulation has partially internalized participation motivation and he or she is competing for social desirability and approval. This athlete competes to win so everyone who is important to that athlete can recognize it. Some research combines external regulation and

introjected regulation because they are both so driven by the competitive "win", however they are slightly different constructs (Ryan & Deci, 2000). An athlete with high identified regulation has a high level of self-determination and internalization; this athlete is motivated through their own interests and abilities within their sport and the need to achieve comes from their personal desire to perform well. The desire to achieve is a self-motivated goal. This athlete competes to win for themselves (Brunel, 1999). Integrated regulation is very similar to identified regulation and some researchers choose to combine this with identified regulation (Ryan &Deci, 2000). The athlete with an integrated regulation is competing for personal satisfaction in the competition. This type of athlete is the most self-actualized and comes the closest to possessing an intrinsic motive for competing.

Performance motivation, similar to goal orientation, is a continuum (Brunel, 1999). This continuum extends from amotivation, the complete lack of motivation, to intrinsic motivation, the complete internalization of motivational factors. Amotivation will not be discussed in depth for this research; presumably competitive adult athletes have some type of motivation or they would have already ceased participation. The continuum of performance motivation used for this discussion therefore, will start with external regulation at one end and finish with intrinsic motivation at the other end. Most motivation theorists propose this type of continuum (Brunel, 1999).

The different levels of extrinsic motivation become important when examining specific motivations for competition. Although external regulation, introjected regulation, identified regulation, and integrated regulation are all categorized as extrinsic types of motivation, the externally regulated athlete is a much different competitor than the athlete with an identified or integrated regulation. Extrinsically motivated athletes, given the correct competitive climate, will

alter their motivation towards a more identified regulation. In a study by Brunel (1999), results demonstrated that athletes in a mastery type climate (competition for the sake of mastering a skill) are much more identified in their regulation, even if they typically are not an intrinsically motivated athlete. Furthermore, according to Ryan and Deci (2000), continued participation in an activity often leads to motivation changing over time and developing from an external regulation to a more integrated one as the person's goals and reasons for participation change.

Participation motivation is closely related to the athlete's goal orientation. The more intrinsically motivated the athlete, the higher the level of task orientation. The more extrinsically motivated the athlete, the higher their ego orientation (Kilpatrick, Bartholomew & Riemer, 2003). If the desire for camaraderie and skill development is the primary motivation for participation, the athlete also typically shows more of task orientation. Conversely, if the primary motive for participation is for recognition and social acceptance then the athlete usually also demonstrates more of an ego orientation (White & Duda, 1994). Li et al. (1996) established ego and task orientation as valid predictors of extrinsic and intrinsic motivation, respectively. By examining participation motivation in conjunction with goal orientation, a good picture emerges of the athletes' driving forces for competition, especially when considering different levels of participation.

Participation Level

Although both participation motivation and goal orientation are extremely important factors in determining competition dropout, other factors such as the level which athletes compete at within their sport should also be examined as possible contributing factors. White and Duda (1994) found a significant relationship between level of participation and goal orientation. Athletes who participated at an elite level in their respective sports showed significantly higher

levels of ego orientation than athletes who competed at lower (amateur) levels (White & Duda, 1994). Conversely, Fredrick-Recascino and Schuster-Smith (2003) found higher levels of intrinsic motivation in competitive cyclists compared to non-competitive cyclists. This finding is in direct opposition to the correlation between participation motivation and goal orientation found by Li et al. (1996). If the correlation between goal orientation and participation motivation holds true, competitive athletes should in fact demonstrate higher levels of both ego orientation and extrinsic motivation. Fredrick-Recascino and Schuster-Smith speculate the atypical result that they produced may be attributed to the lack of elite level participants. The participants in their study were simply classified as "competitive cyclists" or "non-competitive cyclists" with no parameters around those definitions. Athletes were not given any type of definition for "competitive" and were not asked about any affiliation with a racing organization (i.e. USA Cycling). The only requirement to be classified in the "competitive" cyclist category was participation in a single race of any type. Level of participation appears to be a moderating variable in most current research, regardless of the direction in which it moderates the goal orientation and participation motivation relationship. Therefore one goal of this project is to help address this confound in the literature by considering participation level, goal orientation, motivation, and actual dropout behavior of competitive athletes.

Gender

One of the decisive factors that may influence an athlete's goal orientations and participation motivation within sports is the athlete's gender. Differences between males and females appear to develop at a very young age (Landers & Fine, 1996; Parker & White, 2007), and these gender differences in athletes could partially explain the manner in which decisions about competition are made. Throughout childhood boys play sports more frequently than girls

(Weinberg & Gould, 2003). Boys also play more aggressive, complex games and see themselves as more skilled. The rewards for success in these games also place a priority on winning (Weinberg & Gould, 2003). Even the way in which children are treated as young as five years old in a coed tee ball league has demonstrated these differences (Landers & Fine, 1996). While the boys in the league were selected for key positions and developed as athletes by both male and female coaches, the girls were given very little attention and participation time. The girls were not ever considered "athletes" by any of the coaches; for example, the female coach was quoted as saying: "Dads take their sons outside to throw with. Girls stay inside and play with dolls" (Landers & Fine, 1996, p. 75). By the time they reach adolescence, on average, females report significantly lower levels of self-confidence in sport ability than males; this difference in sport ability self-confidence appears to remain constant and does not change in adulthood (Mahoney, Gabriel & Perkins, 1987). This type of developmental influence plays a significant role in dissuading many young girls from sport participation while at the same time boys are being developed into competitive athletes (Parker & White, 2007).

Sport does not play the same role in the life of young female athletes that it plays in the life of a young male athlete (Hammermeister & Burton, 2004). Anshel, Kim, and Henry (2008) demonstrated a significantly higher level of parental influence in the lives of adolescent female athletes. That parental influence is typically in line with the societal norm of non-competitiveness (Anshel, Kim & Henry, 2008). Women are encouraged from a young age to nurture, not to compete (Koivula, 1999). The emphasis on winning which is prevalent in men's competition is not as prevalent at the same level for women, regardless of the level of competition (White & Duda, 1994). This is illustrated in a study by LaChausse (2006) which surveyed both competitive and non-competitive cyclists to determine their motivation for

participation in the sport of cycling. Among both groups, males were significantly more likely to endorse competitive accomplishment as a reason for participation; females endorsed affiliation and self-esteem as their primary motives (LaChausse, 2006). Even the types of sports women are encouraged to participate in are different than those in which men are encouraged to participate (Gill & Kamphoff, 2010). Certain sports are not "feminine" and therefore discouraged among female athletes. Gender Specific sports are part of the social norm.

Given the preceding discussion, it is not a surprising finding that males and females tend to demonstrate different goal orientation and participation motivation in sports (White & Duda, 1994). Male athletes typically exhibit higher ego orientation and a more extrinsically based motivation for participation. Li, Harmer, and Acock (1995) found that male athletes possessed a higher level of ego orientation than females, even when they showed similar levels of task orientation. Similarly, White and Duda (1994) found that male athletes were significantly higher in ego orientation than female athletes regardless of the level of competition. In a study examining the competitiveness and win orientation of both male and female collegiate athletes, Gill and Dzewaltowski (1988) found that the male athletes, regardless of sport, scored higher on both competitiveness and win orientation and females scored higher on goal orientation. Females also scored higher on mastery, demonstrating an underlying motivation of personal achievement. Furthermore, by manipulating the athletic success and failure in male and female athletes, it has been demonstrated that females repeatedly demonstrate higher levels of intrinsic motivation and task orientation than males (Weinberg & Gould, 2003). Female athletes tend to show more task oriented goal perspectives than do males, regardless of the type of competitive sport in which they participate (Hanrahan & Cerin, 2008; White & Duda, 1994). Kilpatrick, Bartholomew and Riemer (2003) also found a similar result when studying recreational athletes.

Attrition Rate

Poor athletic performance as defined by the individual athlete and the resulting attrition rate is also an area that needs consideration. How an athlete defines a "bad day" is part of the bigger picture. One athlete may think of a bad day as any athletic performance in which they did not win. Another athlete may define a bad day in terms of their personal performance as it relates to their abilities. Ultimately these varying definitions of a "bad day" are closely related to both goal orientation and performance motivation (Robinson & Carron, 1982). It is important to keep in mind that giving up insulates the athlete from the pain of failure (Fox, 2008). If success and failure are defined by winning, which is an extrinsically driven, ego oriented goal, then their inability to control the outcome of the event (i.e. win) becomes unacceptable and it becomes easier to quit that accept failure (Fox, 2008).

Edwards, Kingston, Hardy, and Gould (2002) examined a group of eight elite athletes in order to define "catastrophic performance." The athletes were elite males in a variety of sports and all had recently experienced an athletic performance they defined as catastrophic; a competition that started out normally but something went wrong and the athlete's ability to perform dropped dramatically (Edwards, Kingston, Hardy, & Gould, 2002). During the interview process, all of the athletes discussed a point in their competition where they were not motivated to continue competing because they no longer viewed the performance as competitive and therefore no longer worthwhile (Edwards, Kingston, Hardy, & Gould, 2002). The athletes appear to be exhibiting ego oriented, extrinsically motivated behavior. One of the athletes was quoted as saying "I felt as if I had virtually given up by the end of the race" (Edwards et al., 2002, p.10).

Robinson and Carron (1982) examined a group of young male football players in regards to sport dropout rate. Athletes were divided into three groups; starters (athletes who performed

well and started most games), survivors (athletes who played occasionally), and dropouts (athletes who quit the sport). The athletes classified as dropouts showed the highest endorsement for "beating the opposition" as a reason for competing (Robinson & Carron, 1982). This demonstrates characteristics that are ego oriented and extrinsically motivated in male dropout athletes in non-successful competitive situations. Robinson and Carron speculate that the desire to win is so great with these athletes that there is no longer any enjoyment derived from the competition, driving them to quit. Both of these studies were limited to males and did not specifically focus on either goal orientation or participation motivation as variables in the research.

Performance related dropout extends beyond the sporting context. In an academic setting, dropout rate has been shown to be significantly higher when the student perceives their performance to be poor. Students who report higher academic success are much less likely to drop out of high school, regardless of other socioeconomic factors that are usually associated with higher dropout rates, than students who do not achieve academically (Fetler, 1989). This similar behavior in a non-athletic performance situation suggests that perceived success within any performance situation may encourage retention, regardless of what that situation is. Conversely, repeated poor performances in any type of achievement situation may encourage the participant to dropout or at least cease effortful, meaningful participation.

Gaps in the Existing Literature

Some obvious problems were encountered while examining the current research. One of the biggest problems with the current literature is that a large portion of the research on goal orientation and participation motivation was not done with athletes in a single specific sport. This presents a large number of confounding variables. Team sports and individual sports have

been shown to elicit very different goal orientations in athletes (Colley, Roberts, & Chipps, 1985; Cox, 2007). This is most likely due to the differing individual demands of various sports. Studies using athletes from numerous team sports in combination with numerous individual sports give a great deal of variability that is not controlled. It appears as if these studies make the assumption that all athletes are the same, regardless of sport. Even within different types of team sports and different types of individual sports there is great variability in the approach an athlete takes (Cox, 2007). Every sport has demands that are specific to that sport. Making comparisons between such sports as baseball, football, soccer, track, cycling, triathlon, and rugby, for example, does not necessarily give an accurate picture of any single type of athlete nor does it provide us a true picture of which athletic traits are universal and which are sport specific.

Another problem is that the majority of current athlete research involves team sports, where quitting is not an option even on the bad days. In the research that is specific to endurance athletes, there appears to be very little mention of in-competition dropout rates. For this reason, the current literature review included other performance related areas such as academia and recreational athletes to assess similar performance characteristics within these different arenas. Many other areas of psychology focus on attrition rates and dropout in various performance related tasks, these should be relatable to endurance athlete performance.

Hypotheses

H1: Males cyclists will demonstrate a higher in-competition dropout rate than female cyclists.

H2: Male cyclists will show a higher level of ego orientation and female cyclists will show a higher level of task orientation.

H3: Male cyclists will show a higher level of extrinsic motivation and female cyclists will show a higher level of intrinsic motivation.

H4: Athletes with high ego orientation and higher extrinsic motivation are more likely to drop out of races, regardless of gender, than athletes with high task orientation and intrinsic motivation.

H5: Level of competition may be a moderator in all of the above relationships. The higher the competition level, the more extrinsically motivated and ego orientated the athlete will be consequently, the more likely that athlete will be to drop out of races, regardless of gender.

The proposed hypotheses state that male competitive cyclists would rather abandon a competition than finish with a poor result whereas female competitive cyclists would rather finish even on a "bad day" than have a DNF (Did Not Finish). Male competitive cyclists will demonstrate a higher ego orientation and female competitive cyclists will demonstrate a higher task orientation in their approach to racing. Female cyclists will show motives for participation that are more intrinsically based whereas male cyclists will show more extrinsically based motives for race participation. Among athletes of the same gender, athletes who compete at a higher level of their sport will be more likely to abandon competition.

CHAPTER 2

METHOD

Participants

Participants for the archival race results data were 2604 competitive cyclists (2248 male, 358 female) racing in the Southeastern United States during the 2009 and 2010 seasons; all were between the ages of 18 and 59 and were actively racing at a competitive level in the sport of cycling as defined by their USA Cycling or UCI (International) racing license for the season in question (either 2009 or 2010 respectively). Survey participants were 395 competitive cyclists (251 male, 144 female) between the ages of 18 and 59 who were actively racing at a competitive level in the sport of cycling as defined by their USA Cycling or UCI (International) racing license for the 2011 race season (Table 1). Of these 395 participants, 375 (238 male, 137 female) also answered the open-ended qualitative questions on the demographic survey.

Racing categories are assigned by USA Cycling based on age, race experience, and competitive ability. Cyclists from all three disciplines of the sport, road bike racing, mountain bike racing, and cyclocross racing participated. Most participants competed in more than one of these disciplines of cycling, although one was their primary focus. Participants were categorized as a Category 4 (intermediate level) or higher in road and/or cyclocross racing and Category 3 (intermediate level) or higher in mountain bike racing. Although named differently, thesecategories are equivalent between disciplines. No professional cyclists were used in order to eliminate rider attrition being influenced by employer demands. Cycling is a sport where athletes

are routinely competitive from their teens into their late 40's and oftentimes even into their 50's (Herlihy, 2004). The age range being used in this study is typical of participants in bicycle races. Participants were divided and analyzed using their primary cycling discipline if they participated in more than one area of the sport.

Table 1.

Descriptive Statistics for Survey Participants

Gender	Number of Participants	Percentage
Male	251	63.50%
Female	144	36.50%
Age Group		
19-29	59	14.90%
30-39	120	30.40%
40-49	133	33.70%
50-59	83	21.00%
Primary Discipline		
Road	260	65.80%
Mountain	80	20.30%
Cyclocross	55	13.90%
Race Category (Primary discipline)		
Semi-pro (aspiring pro)	165	41.80%
Elite Amateur	118	29.90%
Competitive Amateur	59	14.90%
Amateur Racer	53	13.40%

Participants for the survey portion of the study were obtained in two different ways. First, a mass email was sent to all known available racers requesting participation in an online version of the study using *Survey Monkey*. This same link was sent out via *Facebook* and also posted on numerous bicycle racing club forums and sent to a group of USA Cycling coaches requesting the participation of their athletes. Second, there was an in-person version of recruitment; athletes at

various races throughout the Southeastern United States were asked to fill out a written version of the questionnaire through posted signs and advertising during the race registration process. Permission to solicit participants was obtained from individual race promoters before any requests were made. There were 436 total respondents via all collection methods. Of those, 5 were removed because they were paid professional cyclists and 36 were removed due to insufficient demographic data.

Measures

Copies of all measures and scales are presented in appendix A.

Sport Motivation

The Sport Motivation Scale-6 (SMS-6) is a 24 question, 7 point Likert-type scale which has been developed to examine the perceived reasons behind an athlete's participation in sport (Mallet et al., 2007). The responses are scored from 1 (*it does not correspond*) to 7 (*corresponds exactly*). It is a revised version of the original Sport Motivation Scale (SMS) scale developed by Pelletier, Fortier, Vallerand, and Tuson in 1995 (Mallet et al., 2007). It measures both intrinsic motivation and extrinsic motivation, including three different levels of extrinsic motivation (external regulation, introjected regulation and identified regulation). The SMS-6 demonstrated good reliability with Cronbach's alpha levels between .73 and .82 for all items (Mallet et al., 2007).

Task and Ego Orientation in Sports

The Task and Ego Orientation in Sports Questionnaire (TEOSQ) is a 13 question, 7 point Likert-type scale which was developed to measure goal orientation in athletes (Duda, 1989; Duda & Nicholls, 1992). This scale helps to determine where an athlete falls on the continua of

ego orientation and task orientation (White & Duda, 1994). Li et al. (1998) reported the Cronbach alpha reliability of the scale to be between .87 and .89 for all items; similar results have been found repeatedly in research using the TEOSQ (Kilpatrick, Riemer, & Bartholomew, 2003; Lane 2005; Li, Hammer, & Acock, 1985). Additionally, Li, Harmer and Acock (1995) examined the structure of the TEOSQ to determine if it was measuring the same constructs for both males and females. Their evaluation determined that it does in fact measure similar constructs for both genders with a Cronbach's alpha range of .88 to .90 for each of the items.

In person qualitative questionnaire

There was also qualitative data collected from a portion of the participants. This qualitative portion of the study was intended to give greater insight into the reasons an athlete cites for abandoning or finishing a competition during a poor performance. The in-person qualitative questionnaire contained questions regarding what happened during the race, why the participant chose to abandon or continue, and how typical this type of experience was for that athlete. There was also a section on the self-report questionnaire with open-ended questions similar to those being asked during the in-person interviews. This was included to the self-report questionnaire in order to gain better insight into a larger portion of the respondents' thoughts regarding dropout.

Procedure

Initial data was collected from publically available websites (www.goneriding.com; www.tbra.org; www.usacycling.org) in order to perform an assessment of completion rates of athletes by gender. This initial analysis included two race seasons (2009 and 2010) of regional mountain bike race data as well as two multi-day road bike stage races that took place during the

summer of 2011. Race results data was cross checked with the race director and/or the scoring official from each event to confirm that all participants who started the event were shown on the results list, either with a finishing position or as a "Did Not Finish." These data were then analyzed to determine any significant differences between dropout rates of the male and female competitors.

Following this initial collection and analysis of results data, *Survey Monkey* (www.surveymonkey.com/s/cyclingmotivation) was used to collect survey data from online participants using the SMS-6, TEOSQ, and self-report questionnaire. Concurrent to this, paper surveys with the same questionnaires were distributed in person at three significant races in the Southeast, two cyclocross events, and one mountain bike event (Table 2). Both the online respondents and the in-person respondents filled out questionnaires with the same questions asked in the same order. An unsuccessful attempt to perform in-person qualitative interviews was made during the first two data collection races (Gallatin, TN and Savannah, GA). Athletes were not amenable to discussing their competitive performance immediately following their race; for this reason the in-person qualitative interview portion of data collection was abandoned.

Table 2

In-person data collection sites

Event	Total # of Participants at event (estimated)	Days
US Grand Prix of Cyclocross	1200	2
Louisville, KY		
TN State Mountain Bike Championship	100	1
Gallatin, TN		
Georgia Cyclocross Series	400	2
Savannah, GA		

CHAPTER 3

RESULTS

Prior to all analyses, means and standard deviations were collected for all data (Table 3) and separated by gender. Correlations for all measures were also performed (Table 4).

Table 3

Mean and SD by gender for all measures

	Mean (men)	SD	Mean (women)	SD
TEOSQ				
Task	33.24	8.1	34.89	8
Ego	13.58	6.1	12.16	5.6
SMS-6				
Amotivation	6.51	3.7	6.91	3.64
External Regulation	13.59	5.6	13.95	5.7
Introjected Regulation	16.47	5.3	16.23	5.3
Identified Regulation	17.32	4.2	18.43	4.2
Integrated Regulation	18.9	5	19.4	4.1
Intrinsic Motivation	21.97	3.6	22.87	3.5
Dropout Rate				
Number of races	1.09	1.89	0.53	0.94

Table 4

Correlations for all measures

		1	2	3	4	5	6	7	8	9	10	11	12
1	Gender	1											
2	Dropout	-.163**	1										
3	Age Group	-.142**	-.148**	1									
4	Primary Race Discipline	.990*	-.182**	-.009	1								
5	Race Category	.190**	.081	-.167**	.232**	1							
6	Task Orientation	.980	-.018	-.063	-.032	.069	1						
7	Ego Orientation	-.110*	.004	-.128*	-.017	.275**	.194**	1					
8	Amotivation	.053	.001	-.071	.009	-.059	-.221**	.148**	1				
9	External Regulation	.031	.035	-.096	.002	.108*	.189**	.452**	.094	1			
10	Introjected Regulation	-.022	-.111**	-.074	-.047	-.007	.168**	.261**	.064	.471**	1		
11	Identified Regulation	.126*	-.045	-.054	.054	.110*	.493**	.166**	-.114*	.469**	.387**	1	
12	Integrated Regulation	.051	-.077	.037	.063	.155**	.370**	.183**	-.181**	.361**	.592**	.508**	1
13	Intrinsic Motivation	.121*	.028	-.014	-.091	.105*	.650**	.134**	-.278**	.270**	.231**	.434**	.396**

** Relationship is significant at p< .05; **Relationship is significant at p<.01*

In-competition dropout rates

Analysis of the archival race result data was performed comparing genders by completion rate and showed a significant difference in attrition rate between male and female competitors, with the resultant $X^2(1, N = 2604) = 13.97$, $p < .001$. These data demonstrate that male competitors dropped out of races at a significantly higher rate than female competitors, with a male dropout rate of 10.5% and a female dropout rate of 4.2% (Figures 2 and 3). This data only took into account dropout rate; it did not assess the reason for the dropout (i.e. mechanical issues versus abandonment due to poor performance). For this reason, a more complete analysis of dropout rates was taken from the survey data. Participants were asked how many races they abandoned in the 2010 and 2011 seasons and how many of those dropouts were due to mechanical problems. For each participant, the number of dropouts from the two seasons was added together and the number of mechanically caused dropouts was then subtracted from the total number of reported race drop outs, giving a total number of non-mechanical dropouts for each participant over the course of two race seasons. The non-mechanical dropout data was examined using an independent samples T-test; significant differences were shown between genders, $t(393) = 3.27$, $p < .001$, with 41.8 % of men reporting non-mechanical race dropout and 31.9% of women reporting non-mechanical race dropout over the 2010-2011 race season timeframe.

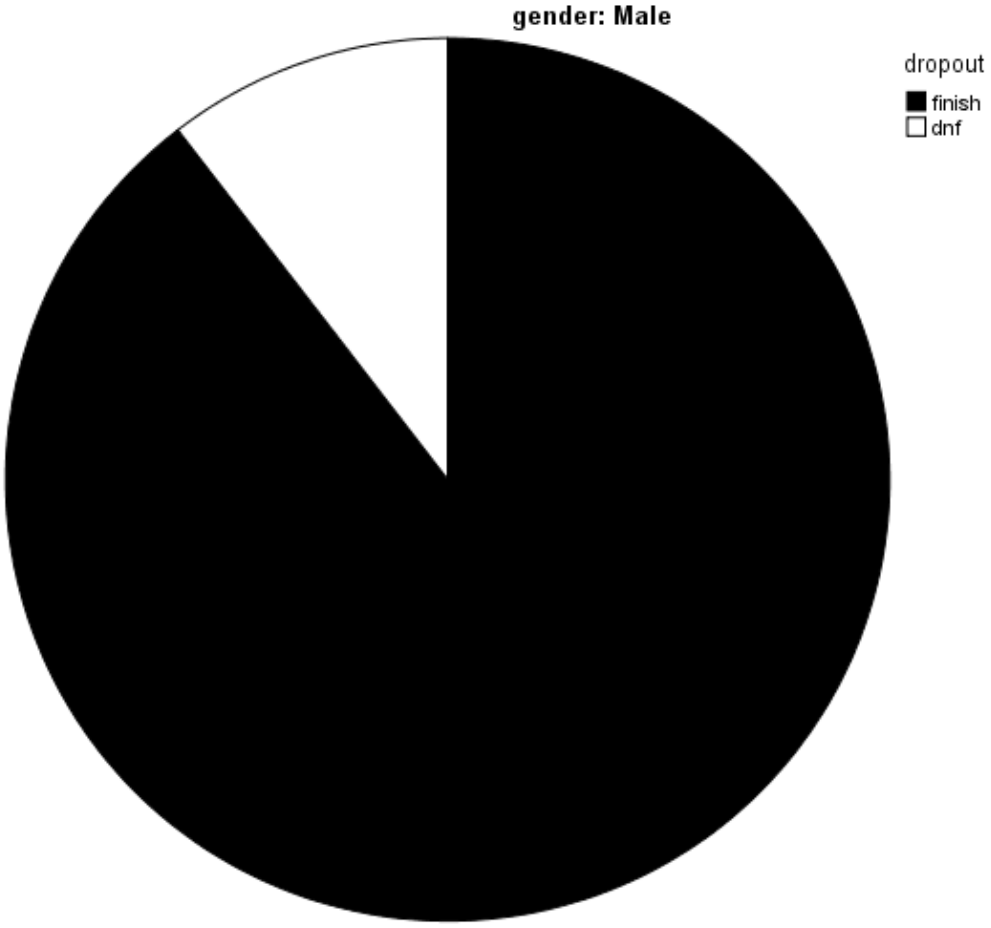

Figure 2

Male dropout rate from initial race results data

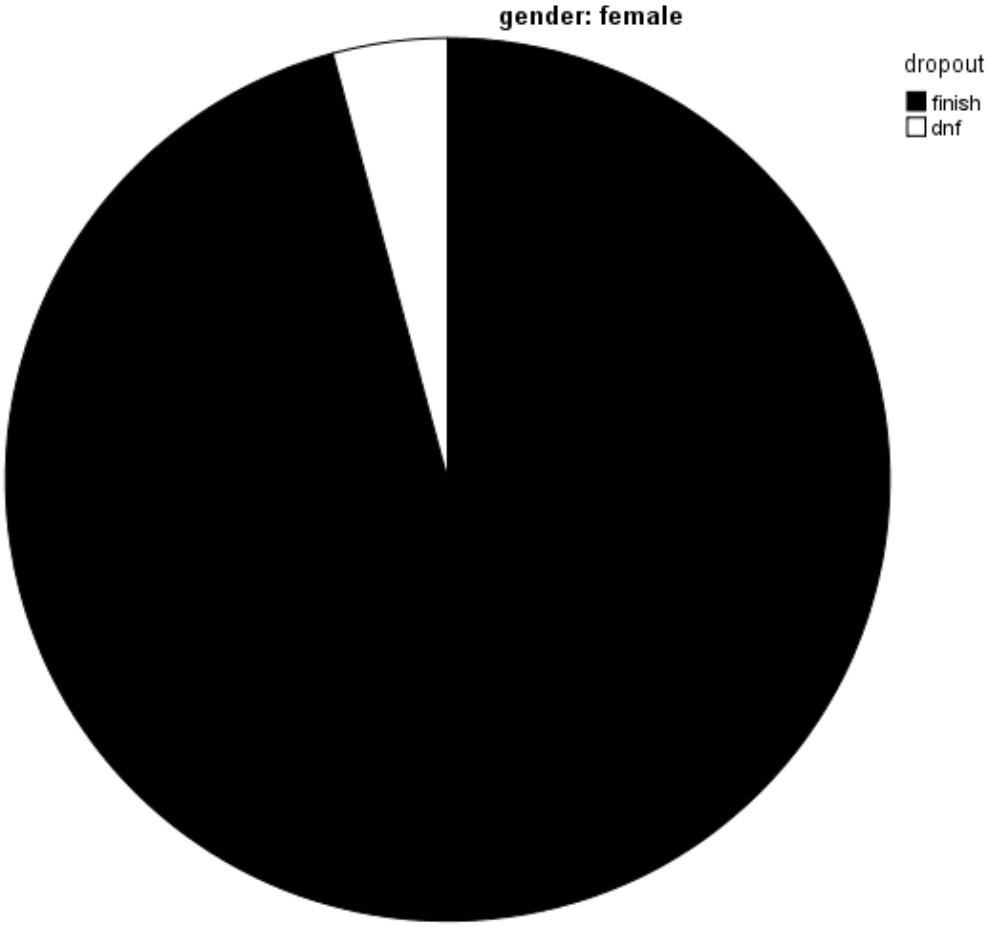

Figure 3

Female dropout rate from initial race results data

Goal orientation

Goal orientation was examined using analysis of variance. Results showed a significant gender difference in the ego orientation of the participants, with males exhibiting a higher ego orientation than females ($F(1, 395) = 4.812$, $p = .015$). There was also a significant difference in the task orientation of the participants when examined by gender ($F(1, 395) = 3.844$, $p = .026$), with females exhibiting a higher task orientation than males (see Figure 4, Table 5).

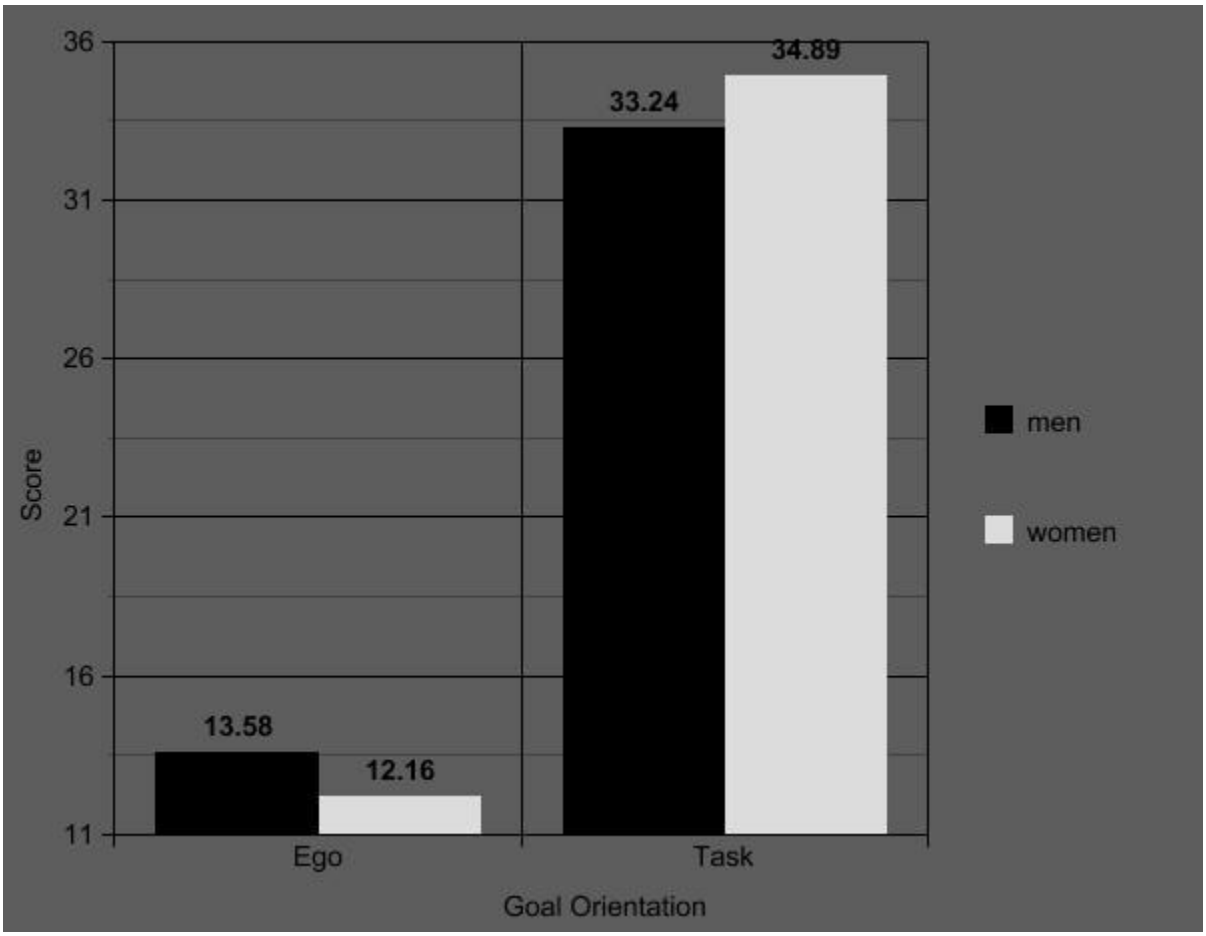

Figure 4

Mean scores by gender for goal orientation; range for task orientation is 7 - 49 and range for ego orientation is 6 - 42.

Table 5

TEOSQ Mean Scores and Standard Deviations

Goal Orientation	*Men*	*Women*
*Ego**	*13.58 (6.1)*	*12.16 (5.6)*
*Task**	*33.24 (8.1)*	*34.89 (8.0)*

*Difference is significant at p< .05**

Participation motivation

All motivational factors were examined using analysis of variance. There was no significant gender difference in amotivation ($F(1, 395) = 1.119$, $p = .291$), external regulation ($F(1, 395) = .368$, $p = .544$), introjected regulation ($F(1, 395) = .188$, $p = .665$), and integrated regulation ($F(1, 395) = 1.022$, $p=.313$) when compared by gender. There was a significant difference between genders in identified regulation ($F(1, 395) = 6.293$, $p = .013$) and intrinsic motivation ($F(1, 395) = 5.806$, $p = .015$) (see Figure 5 and Table 6).

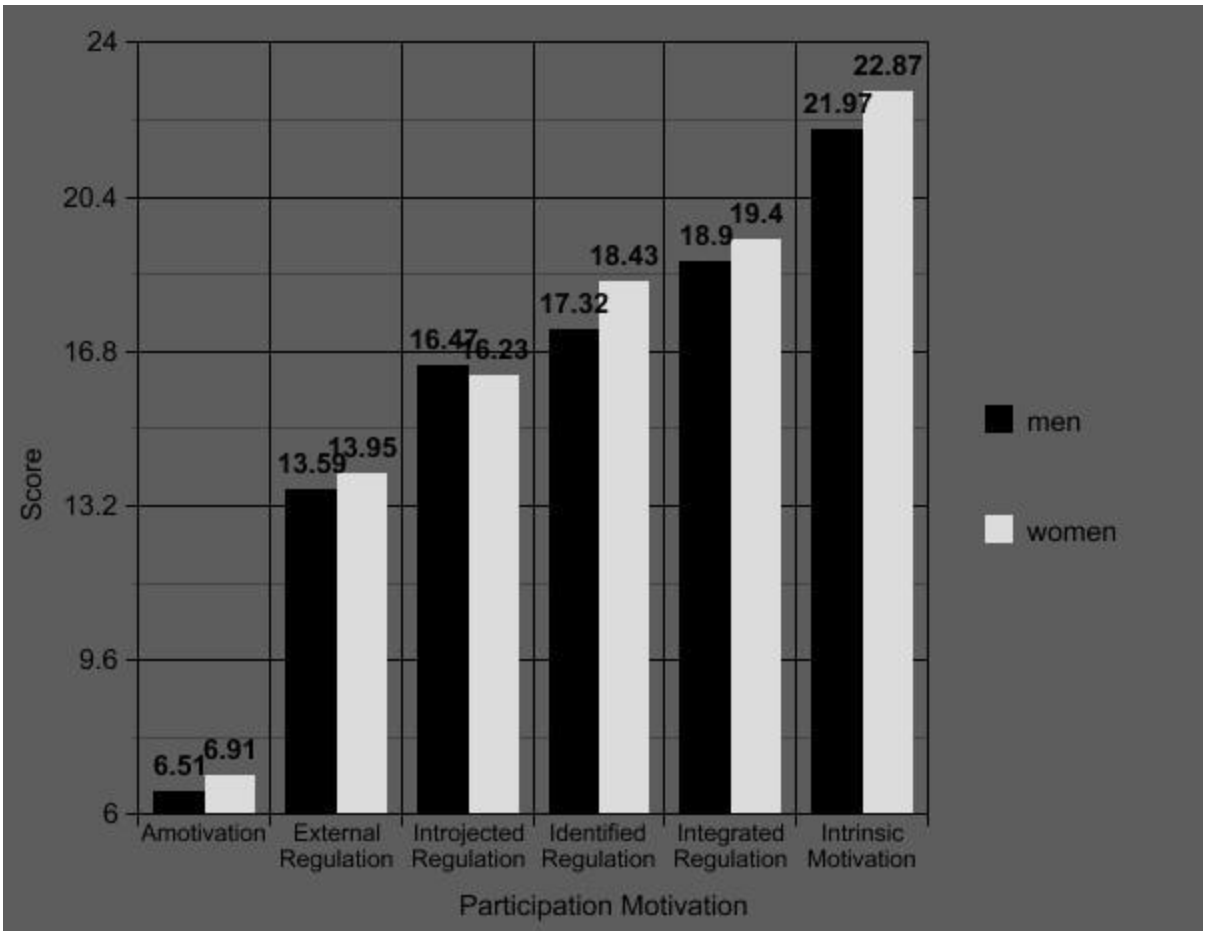

Figure 5

Mean scores by gender for participation motivation factor; possible range for scores is 6 – 42.

Table 6

SMS-6 Mean Scores and Standard Deviations

Participation Motivation	*Men*	*Women*
Amotivation	*6.51 (3.7)*	*6.91 (3.64)*
External Regulation	*13.59 (5.6)*	*13.95 (5.7)*
Introjected Regulation	*16.47 (5.3)*	*16.23 (5.3)*
*Identified Regulation**	*17.32 (4.2)*	*18.43 (4.2)*
Integrated Regulation	*18.90 (5.0)*	*19.40 (4.1)*
*Intrinsic Motivation**	*21.97 (3.6)*	*22.87 (3.5)*

*Difference is significant at p< .05**

Dropout rate in relation to goal orientation and motivation

Correlational analysis did not support the hypothesis that athletes with a high ego orientation and high levels of extrinsic motivation drop out of competitions at a higher rate than those athletes with high task orientation and high intrinsic motivation, regardless of the athlete's gender. The only significant relationship was between race drop out and introjected regulation (r = -.111; p = .027; *N* = 395). Introjected regulation is the desire for social acceptance and approval. When this same correlation was done and split by gender there is still a significant relationship between male dropout rate and introjected regulation (r = -.133; p = .035; *N* = 251) but no significant relationship for females and dropout. Additionally, when the dropout rate correlation was separated by gender, females showed a significant relationship between dropout and integrated regulation (r = -.180; p = .031; *N* = 144), the regulation that is defined as competing for reasons of self-awareness and is most closely related to intrinsic motivation, which males did not exhibit.

Level of competition as a moderator in the above relationships

The hypothesis that level of competition was a moderator in the relationships between gender and dropout rates was not supported. Data consisted of athletes from differing levels of competition within the sport of cycling. In order to eliminate the possibility that participants from one competition level may exhibit different dropout rates than participants in another competition level, regardless of that athlete's gender, an analysis of variance was performed. Results indicated that there was not a significant difference in dropout rate between cyclist in the four different competition levels (Table 1) of the sport ($F(1, 395) = 2.199$, p=.088), therefore, further analyses dividing participants by category was not necessary.

Qualitative interviews

In-person post-race qualitative interviews were initially planned in order to gain insight into the thoughts and feelings of athletes that experienced a poor performances and either did or did not drop out of the race. This research design was reevaluated and revised after a number of attempts to collect data from cyclists immediately following a bad race were unsuccessful. Competitors were not amenable to discussing their experiences with anyone immediately following the experience. For this reason, the qualitative portion of the demographics questionnaire was used as the primary source of obtaining cyclists' perspective on race dropout.

The participants' responses to the last question in the demographic questionnaire: "If you are having a bad race, how likely are you to quit? Why?" were used to expand on the results acquired with the quantitative questionnaire portion of the research. Response rate on this optional question was fairly good, 375 of the 436 total respondents answered (238 male, 137 female). Responses were analyzed and coded in 8 basic themes related to the question of dropout: 1) Dropout is acceptable only if there is risk of injury/illness, mechanical failure, or bad

weather; 2) Dropout during poor performance depends on the situation but is possible, especially if it is a particularly embarrassing situation; 3) Yes, bad race day equals dropout; 4) Dropout is justified and to be expected if performance is poor; 5) No, it is embarrassing to quit; 6) No, racing is fun even on bad days, I paid money to be there, I came to race regardless of result; 7) No, not likely to dropout regardless of result; 8) No, I will continue for the workout and/or satisfaction of completion. The frequency of responses to these questions was then examined by gender (Table 7). Both men and women were similar in their response rates on questions 1, 5, 6, 7, and 8. It appears that the qualitative reasons that both men and women give regarding perseverance or attrition under these circumstances are similar. Questions 2, 3, and 4 were primarily reasons given by men for dropout; very few women cited these reasons as viable answers to the question of dropout.

Table 7

Qualitative response results

Reason for or Likelihood of Dropout	Men	women	Total % of Respondents
1. Yes if Injury/ Illness/ Mechanical/Weather	32 (14%)	31 (23%)	16.80%
2. Maybe/ embarrassment/ situational	12 (5%)	1 (1%)	3%
3. Yes	4 (2%)	1 (1%)	1%
4. Yes if performance is poor	21 (9%)	5 (4%)	7%
5. No, embarrassing to quit	1 (<1%)	3 (2%)	1%
6. No, paid money to race/ am there to race/ always fun	3 (1%)	4 (3%)	2%
7. No/ Not likely	150 (63%)	80 (58%)	61.30%
8. No, will continue for workout/ satisfaction	15 (6%)	12 (9%)	7%

CHAPTER 4

DISCUSSION

Competition dropout

It appears that male cyclists drop out of competitions at a higher rate than female cyclists. This was first demonstrated by the initial analysis of race results data; this initial analysis did not take into account mechanical issues with the participants' equipment (i.e. flat tire, crash, and other bike related issues). This data was then reinforced by the data supplied by participants in the self-report portion of the study. The participants' data was sorted for dropouts due to mechanical issues; presumably the remaining attrition in races was due to poor performance related causes. By controlling for the mechanical issues, remaining dropout rates were presumably due to performance issues. Demonstrating differences in dropout rates between men and women is significant to the remainder of the arguments made in this study. Results indicate that men do drop out of bicycle races more often than women do; with this finding we can now examine the remaining hypotheses and consider some of the reasons which may contribute to this dropout rate.

Goal Orientation

As hypothesized, male cyclists showed a higher ego orientation and lower goal orientation than female cyclists. This may be attributed to gender differences in the ways in which males and females differ in their social roles and overall sport development (Parker &

White, 2007). Previous research has demonstrated this relationship with the explanation that men and women are raised in different sport-type environments and that this impacts the ego and goal orientation of the individual (Koivula, 1999; Parker & White, 2007). It appears that competitive cyclists are not an exception to this finding.

It is important to note that both male and female cyclists scored higher as a whole on both task orientation (Figure 4) and intrinsic motivation (Figure 5) than they did on ego orientation and the various forms of extrinsic motivation. Although it is uncommon for an athlete to be high in both task orientation and ego orientation (Duda, Keller, & White, 1998; White & Duda, 1994), male cyclist appear to function within parameters that allows for this type of development. Even though there were significant gender differences, it is apparent that cycling as sport requires a great deal of intrinsic motivation and task orientation in order to be successful. There could be a number of explanations for this. One explanation could lie within certain characteristics inherent to the sport of cycling. Cycling is a sport that is very individual; with the exception of athletes at an extremely elite level, local teams are clubs loosely run by volunteers and most practice and training is done alone for extended periods of time. It is also a sport where most participants are adults competing for recreational enjoyment. Only 6 percent of licensed racers in the United States are under the age of 18. The majority of participants are between the ages of 19 and 64 years old (89%), with the most participants within the 35-44 year (29%) and 45-54 year (25%) age group (USA Cycling, 2011). Even athletes competing at a fairly high level are doing so for the sake of the participation as adult athletes.

Also, all participants in this study were recreational athletes; paid professionals were excluded from the database. For these athletes, there is not the same external pressure to participate from family, classmates, or academic organizations, that is often felt in a more "high

stakes" type sport (e. g., scholarship sports, professional athletes, and school athletics). Additionally, because it is primarily an individual sport, there is also no pressure from teammates. These factors all point to cyclists exhibiting higher than normal task orientation as a function of their participation in the sport of cycling. This does not affect the level of ego orientation the athlete will exhibit, nor does it change all of the motives for participation, but it may influence the initial draw of a certain type of athlete toward the sport of cycling. The implications of this finding could have a significant impact in the understanding of what drives both adult and/or endurance sport athletes.

Motivations for participation

As expected, there was no significant difference between genders on the construct of amotivation. As a self- driven, adult sport, it is assumed that there is a self-selection process and therefore anyone actually participating in the sport of cycling wants to be there. High levels of amotivation are associated with an athlete's desire, or more accurately lack of desire, to maintain participation (Ryan &Deci, 2000). Once an athlete is participating in a sport as an adult, presumably they are either being paid (either through professional sports or college scholarships) or they are there for some type of personal fulfillment. Paid professionals were eliminated from this study (cycling is not an NCAA sport in the United States so there is no option for full scholarship athletes), therefore all remaining participants were recreational adults. Some of these adults were extremely serious competitors, and a few were striving to obtain a professional contract, but all were non-paid adult recreationists in the strictest definition of the word. This type of self-driven athlete should not exhibit the characteristics of amotivation, exactly as the results show.

The lack of a significant difference between men and women on the construct of external regulation was initially surprising. According to both previous research and the hypothesis, external regulation should have been very different in men than in women (LaChausse, 2006). However upon further examination a few possible explanations for this finding emerged. External regulation is so close to amotivation on the motivation continuum (Figure1) that it is beyond the scope of where study participants register on the motivation continuum. An externally regulated athlete is completely driven by the performance expectations of others. For this athlete, success is only defined by a win because the athlete is expected to win by others who are important to that athlete. As was posited previously, this sample of participants is not competing in a social situation that dictates that type of external pressure. It is most likely for this reason that we see no difference between men and women in external regulation. Another related possibility is that motivation is sport specific. Bicycle racers could also be a self-selecting group in their characteristics due to the specific demands of the particular sport. Cycling is a very lonely sport defined by many hours of solo training. There are not team imposed pressures and goals like there are in organized team sports. This type of solo endurance sport could draw a specific type of athlete who is much less likely to be externally regulated than athletes in team sports. It could actually be the nature of the sport of cycling itself that is causing the atypical result in the external regulation of the participants.

There was also no significant gender difference in introjected regulation. According to motivational theory, introjected regulation encompasses a desire to perform well during competition in order to gain external recognition for that accomplishment (Brunel, 1999). The introjected regulation athlete is an athlete that wants to win in order to show his peers that he is good at his sport. Introjected regulation is extremely similar to external regulation; many

researchers even combine these two constructs into one (Ryan & Deci, 2000). It is most likely for this reason that there is no significant difference between men and women in the characteristic of introjected regulation.

There was a significant difference between genders on the next level of motivation, identified regulation with women scoring higher than men. This is significant to the hypothesis. As defined (Ryan &Deci, 2000), identified regulation is competing for a sense of personal importance and self-determination. This type of motivation, although extrinsic in definition, is much closer on the continuum toward intrinsic motivation. Some researchers even combine this construct with integrated regulation (Ryan & Deci, 2000). This is an athlete that is competing for themselves and although they have external goals, they are personal in nature. It is a self-satisfaction outcome based on personal achievement. From these results, it appears that when female cyclists set extrinsic goals, they are setting personal performance related goals, whereas male cyclists do not appear to set these type of goals. For example, instead of setting a race goal as a win or even a competitive placing against others, the identified female cyclist would set a goal such as a technically flawless ride on a difficult course in order to show her competitors, and herself, her competence.

There was no difference between genders in integrated regulation. This motivation constraint is defined as competition for the purpose of personal congruence with the sport and for self-awareness. This requires a regulation that has been almost completely internalized but is not yet intrinsic. Gender differences in this area may not be evident because this type of regulation is not at the extremes. With an athlete who is extremely externally or identified in their regulation, the motivation is obviously from an outside source. Conversely, an athlete who is completely internally motivated is solely competing for their own purposes. Motivation becomes a bit more

convoluted as we venture between these two extremes; this is the area in which integrated regulation lies. It is also possible that differences were not shown because women are high in this area due to its proximity and similarities to intrinsic motivation (which they are higher on than men) and men who have a tendency toward intrinsic motivation actually exhibit integrated regulation. Thus, there would be no overall difference between genders in integrated regulation but the reasons which they are similar on this characteristic are very different.

The significant difference between male and female competitors in intrinsic motivation was in line with the hypothesized results. Female cyclists are more intrinsically motivated than male cyclists and it appears their specific motivation for competition is much more internally driven. This implies that although men and women are similar in some of their drives for participation, the specific motives that drive them to race bicycles are different. Participation may initially be driven by the same goals, but the actual motives for the way that racing is approached are different between genders. A hypothetical example of this would be John (a man) and Sara (a woman) both participating in the sport of cycling for the fitness and enjoyment of racing bicycles, however on race day John's goal is to show his friends his ability (in the form of a high finish) whereas Sara races for the personal sense of accomplishment that comes with her completion of the race.

Dropout as a result of ego and extrinsic motivation

Analysis did not support the hypothesis that athletes with high ego orientation and higher extrinsic motivation are more likely to drop out of races, regardless of gender, than athletes with high task orientation and high intrinsic motivation. The only significant relationship was a negative correlation between race drop out and introjected regulation, suggesting that athletes with an introjected regulation actually exhibit lower dropout rates. Introjected regulation

is the desire for social acceptance and approval and it appears from these results to be a reason to continue racing and not drop out. This relationship disappeared for females when the same analysis was done and split by gender, showing that gender was actually a factor and that men who were high in introjected regulation were more likely to remain in the competition during a poor performance; possibly due to a feeling of social stigma attached to ceasing participation. Introjected regulation is a form of extrinsic motivation and in this case those extrinsic factors are actually driving men with an introjected regulation to remain in the competition. This may also suggest that without this social stigma, there would not be a reason for these competitors to remain in the competition on those "bad days". This was exemplified in some of the responses to the question regarding dropout during a bad day: "Those who persevere, whether for personal pride or to minimize embarrassment, are in a position to salvage a satisfying race," and "Quitting is a sign of weak character," and "It would be embarrassing to quit." (Male participants) All of these reason point to a social stigma surrounding race abandonment.

Additionally, when split by gender, a negative correlation between dropout and integrated regulation appears for women. This is in line with the results and the hypothesis, indicating that women are higher in the characteristics of intrinsic motivation as a drive for sport participation and completion. Integrated regulation is the highest level of extrinsic motivation and is very close to being intrinsic motivation; as such it becomes an extremely personal reason for remaining in the competition for the female competitor. As one female competitor stated; "I have never quit a race but I've cried while I've been in a race, still riding hard" (Female participant). This type of drive would help partially explain the motivation for female competitors at all competition levels to remain in the competition regardless of results or performance.

These results indicate that both men and women possess the motivation to remain in competitions during poor performances although this motivation is driven from different sources. Unfortunately this result also creates more questions than answers in this particular realm, although it does allude to other confounding variables that need to be examined, such as the social stigma and pressure associated with both remaining in competition and dropping out of competitions in certain situations. Dropout is more prevalent among male competitors and male competitors exhibit higher levels of ego and lower levels of task and intrinsic motivation. It does not however appear that high ego orientation and high levels of extrinsic motivation are a driving factor behind what is motivating male or female competitors to drop out. In contradiction to the hypothesis, it appears that the social stigma associated with poor performances or race abandonment is enough to keep some male athletes in the competition. Additionally, even though the results suggest there is not a relationship between higher levels of ego orientation and extrinsic motivation, qualitative data from male participants cited reasons for dropout that appeared to be very ego-centric: "Yes, nearly all of the time I do quit. I pull the plug and save the energy for when I feel good," "Yes, save it for another day," and "I'm not there just to finish." (Male participants).

Level of competition as a moderator

Level of competition was not a moderator in any of the examined relationships. Although this result initially appears to be in direct conflict with much of the previous research in this area which showed significant relationships between competition level and goal orientation, motivational factors, dropout, and gender (Li et al., 1996; White & Duda, 1994), results are in line with the Fredrick-Recascino and Schuster-Smith (2003). Similar to the current study, Fredrick-Recascino and Schuster-Smith also used a sample of cyclists for their study and their

participants did not fall at the extremes of competition levels. By limiting the lower and upper ends of our sample pool, novice and professional racers were eliminated and any differences that may have been moderated by competition level were effectively removed. Most research that has demonstrated differences between competition levels were shown between elite professionals and novices participants (Li et al., 1996; White & Duda, 1994). It may also be important to consider that most previous research appears to have been performed on team sport athletes with the exception of the cycling study by Fredrick-Recascino and Schuster-Smith.

The qualitative questions were an interesting insight into the motives for both male and female athletes' opinions on acceptable reasons and situations where competition dropout occurred. Male athletes who abandoned gave reasons for dropout related to poor results and poor performances in relation to their peers: "I usually quit a race when I realize I am clearly out of contention because it's not a charity ride, it's a race and I don't gain satisfaction for simply completing a course" (Male participant). Both male and female athletes who dropped out gave reasons related to the physical inability due to illness, injury, and mechanical issues. Both genders that finish in spite of poor performances gave reasons related to the need for completion for their own personal satisfaction. There was some cross over in the characteristics possessed by males and females, for example one female participant stated: (I am) very likely (to quit). What's the point of finishing if you are off the back and killing yourself for no reason? I'd rather go to the car and get home earlier than planned." (Female participant) Conversely, there were also male participants who considered quitting unacceptable: "I don't quit races", "A crap result causes less guilt than quitting", and "I never quit. It's not about winning for me it's about finishing the best that I can." (Male participants)

Limitations

One consideration that is a potentially limiting factor to the current study is that the sport of cycling is demographically male dominated with 86 percent of all licensed racers being male (USA Cycling, 2011). This may be increasing the chances of a self-selection bias among female cyclists simply because they are such a minority in the sport. There could be a determination that is being facilitated among female cyclists to finish regardless of result just to prove that they belong in such an overwhelmingly male dominated arena. By extending this research to include a wider range of athletes from other endurance sports, we may be able to develop a theory that addresses the ways men and women differ during less than ideal competitive situations. This may then be generalizable beyond the realm of sport to other areas of performance psychology.

Another area which may be a limiting factor and needs to be considered in future research is individual personality traits. This research did not take into account the personality traits of the participants. It has been speculated that certain personality types elicit specific responses to athletic participation. For example, research by Colley, Roberts, and Chipps (1985) demonstrated significant personality differences between individual and team sports, between male and female athletes, and between female individual sport athletes and female team sport athletes. The more competitive the athlete, the more extroverted they were, regardless of gender. This is a trait that may also influence the willingness to drop out of competitions. These findings could potentially be an influencing factor in the attrition rate of certain athletes and should be considered before any definitive conclusions regarding attrition rates are reached.

Finally, two methodological problems that could be improved upon are the sample size and the use of self-report for data collection. Self-report data always has the possibility of bias from the participant. It is possible and even probable that many of the participants reported

characteristics that were exaggerated or enhanced in order to depict themselves in a better light. There is not a good solution to this problem other than continued research to illustrate trends over multiple studies. The sample size was sufficient to demonstrate results but a larger sample size in future research would allow for expansion of the examination of some of the specific sub-groups within this study.

Practical implications and directions for future research

Both the SMS-6 measure and the demographic questionnaire gathered more information than is within the scope of the current study. Future examinations of this data should begin with expanding on the already collected data. Two areas which need to be explored that were outside the scope of the current study are age differences and specific cycling discipline. Significant differences in the areas of cycling discipline and age were shown to exist, although neither had an effect on gender.

Cyclists in the 50-59 age group were significantly less likely to drop out of competition, regardless of gender, than racers in any of the other age groups ($F(3, 395) = 3.78$, $p = .011$). This could be a result of maturity and a corresponding shift in goal orientation and participation motivation. There was a significant negative correlation between age and ego orientation for this age group also ($N = 395$, $r = -.128$, $p = .011$), further indicating this shift. By this age, many athletes have been competing for many years, some for most of their adult lives (Herlihy, 2004), and they no longer have anything to prove. Their motives for racing have shifted and internalized. Athletes at this age have no aspirations of winning the next penultimate event; instead they are racing to challenge themselves and maintain a level of fitness in order to improve overall quality of life. This was echoed in the qualitative responses by both male and female participants in the 50-59 age group: “When I was a teenager I would quit, but now I never

quit-- I just finish and enjoy the ride. I'm actually not very good at racing, but I participate because racing makes me work hard." (Female participant, 50-59 age group); and "I don't quit unless my body or bike simply cannot make it. I'm long-term focused - my goal is to be the fastest 90 year old in 38 years. You don't reach that kind of goal by quitting." (Male participant, 50-59 age group). Others defined their ideas of success within the sport in an exceedingly intrinsic manner:

> (Quitting is) not very likely. The only times that I have quit from a race were because of injury or mechanical failure. Why? I guess it's because my commitment to doing a race is entirely personal and within, and has little to do with the typical measure of "good race" or "success" (in the sense of winning or placing well, or even reaching a personal best in the sense of physical results). My motivations are personal, but typically NOT about the race itself. (Male participant, 50-59 age group)

It is for these reasons that this area needs further investigation. Somewhere throughout the longevity of a competitor's career there appears to be a shift to a much more task oriented approach to competition. It would seem from this data that this shift is occurring around the age of 50 for cyclists. This could also be a result of not only the athlete's age, but also their number of years as a competitor or even a combination of these two things.

There was also a significant difference in dropout rate between road bike racers and both mountain bike races and cyclocross racers, with road bike racers dropping out at a significantly higher rate than either mountain bike or cyclocross athletes ($F(2, 395) = 8.614$, $p<.001$). This is not entirely surprising for anyone who is familiar with the sport of cycling. At the professional level, road bike racing is a team sport, with competitors racing on professional teams who work together for a singular goal of getting one of their riders the win. It is often described as a "rolling chess game" where some riders on the team do the work early in the competition and are sacrificed as a pawn in order to attain that win for the team. Often times once the pawn has done his job he will drop out instead of finish. In the non-professional ranks of road bike racing,

racers often organize themselves into club “teams” and attempt to race in this same manner. Being a member of one of these amateur road racing “teams” is not required to participate in road bike races. There are many times when racers do not have teammates to work with and simply race for themselves, but team participation and tactics is an aspect of this specific type of racing that may contribute to higher dropout rates. It is important to recognize that abandoning the race after your job is complete is not a requirement; many racers will continue just to complete the competition, but there is a segment of the road racing population that does drop out.

Conversely, both mountain bike racing and cyclocross racing are not team sports. Individual always compete solely for their own results and therefore do not have to take into account teammates or strategy. This alone is the most likely contributor to the disparity in dropout rates and attitudes between disciplines.

Both the areas of age and cycling discipline illustrate specific groups that could expand on the current findings and lend better insight into in-competition attrition rates. In depth examination of both of these groups and the specific characteristics they exhibit are necessary before any concrete conclusions should be made regarding dropout during self-perceived poor athletic performance.

CHAPTER 5

CONCLUSION

In conclusion, the attrition rate differences between male and female cyclists are apparent from this research. A recent real-life illustration of male dropout during an important competition was seen at the professional level during the 2012 Cyclocross World Championships. Jonathan Page, the number two athlete for the United States National Team, was expected to easily race to a top 20 result; top 10 if he had a fantastic day. Two weeks prior to the event, he experienced an injury (fractured wrist) and was faced with the choice of competing injured or relinquishing his spot to an alternate. Not only did he keep his spot, he confidently stated that he would be competitive and ready to race to his personal best ever result at a World Championship. On race day he started strong and slowly began losing places. By the time he had dropped to 20^{th} place it was evident that he did not have "it". Shortly after the halfway point in the race he dropped out.

Cyclocross racing is a short circuit type race where competitors do the same circuit for a duration of one hour (men) or 45 minutes (women). Because the race course is so short often times the lead riders will lap those who have fallen off the pace. If a racer gets lapped, they get pulled from the race and are still placed in the results however they are given a completion time that is "X" number of laps down from the leader instead of an actual finish time. This can be an extremely embarrassing result for an ego driven extrinsically motivated athlete. Not only does the placing show a poor performance, it also shows specific inadequacies at a competition level. In a race such as cyclocross, where the total race time is one hour or less, the only reason to drop

out of a race such as the World Championships is to avoid the embarrassment of being lapped by the lead rider and consequently pulled from the competition. It is speculated that Page abandoned the competition in order to avoid being lapped. Eighty-four percent of the men finished the race. Ninety-two percent of the women finished.

The results from the Cyclocross World Championships are an illustration of the differences between male and female cyclists' in-competition dropout rates. Men and women approach competition differently and this difference appears to be reflected in the attrition rates in competitive cyclists. This research demonstrated higher task orientation and intrinsic motivation in females than in males and a corresponding higher in-competition dropout rate in male cyclists. Both an athlete's goal orientation and their motives for participation could partially explain the disparity in this dropout rate. Implications for the arena of endurance sport in particular, where in-competition dropout is a possibility, and more generally in the arena of team sports, where although athletes don't physically drop out they can mentally "give up" during poor performances, suggest that evaluating this gender difference may allow for improvements in the ways in which coaches, parents, and athletes approach competition. By understanding differences between males and females in this area of sport, it becomes possible to begin formulating a plan to help athletes of both genders excel during even the worst competitive performances.

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APPENDIX A

MEASURES

Sport Motivation Scale-6

Using the scale below, please indicate to what extent each of the following items corresponds to one of the reasons for which you are presently practising your sport.

Does not correspond at all	Corresponds a little		Corresponds moderately	Corresponds a lot		Corresponds exactly
1	2	3	4	5	6	7

Why do you practice your sport?

1. For the excitement I feel when I am really involved in the activity	1	2	3	4	5	6	7
2. Because it's part of the way in which I've chosen to live my life	1	2	3	4	5	6	7
3. Because it is a good way to learn lots of things which could be useful to me in other areas of my life	1	2	3	4	5	6	7
4. Because it allows me to be well regarded by people that I know	1	2	3	4	5	6	7
5. I don't know anymore; I have the impression of being incapable of succeeding in this sport	1	2	3	4	5	6	7
6. Because I feel a lot of personal satisfaction while mastering certain difficult training techniques	1	2	3	4	5	6	7
7. Because it is absolutely necessary to do sports if one wants to be in shape	1	2	3	4	5	6	7
8. Because it is one of the best ways I have chosen to develop other aspects of my life	1	2	3	4	5	6	7
9. Because it is an extension of me	1	2	3	4	5	6	7
10. Because I must do sports to feel good about myself	1	2	3	4	5	6	7
11. For the prestige of being an athlete	1	2	3	4	5	6	7
12. I don't know if I want to continue to invest my time and effort as much in my sport anymore	1	2	3	4	5	6	7
13. Because participation in my sport is consistent with my deepest principles	1	2	3	4	5	6	7
14. For the satisfaction I experience while I am perfecting my abilities	1	2	3	4	5	6	7
15. Because it is one of the best ways to maintain good relationships with my friends	1	2	3	4	5	6	7
16. Because I would feel bad if I was not taking time to do it	1	2	3	4	5	6	7
17. It is not clear to me anymore; I don't really think my place is in sport	1	2	3	4	5	6	7
18. For the pleasure of discovering new performance strategies	1	2	3	4	5	6	7
19. For the material and/or social benefits of being an athlete	1	2	3	4	5	6	7
20. Because training hard will improve my performance	1	2	3	4	5	6	7
21. Because participation in my sport is an integral part of my life	1	2	3	4	5	6	7
22. I don't seem to be enjoying my sport as much as I previously did	1	2	3	4	5	6	7
23. Because I must do sports regularly	1	2	3	4	5	6	7
24. To show others how good I am at my sport	1	2	3	4	5	6	7

Key

Amotivation	5, 12, 17, 22	Identified Regulation	3, 8, 15, 20
External Regulation	4, 11, 19, 24	Integrated Regulation	2, 9, 13, 21
Introjected Regulation	7, 10, 16, 23	Intrinsic Motivation	1, 6, 14, 18

Task and Ego Orientation in Sports Questionnaire (TEOSQ)

1. I'm the only one who can do or play the skill. (ego)
2. I learn a new skill and it makes me want to practice more. (task)
3. I can ride better than my friends. (ego)
4. Others can't ride as well as I can. (ego)
5. I learn something that is fun to do. (task)
6. Others mess up and I don't. (ego)
7. I learn a new skill by trying hard. (task)
8. I work really hard. (task)
9. I win the most races. (ego)
10. Something I learn makes me want to go and practice more. (task)
11. I'm the best. (ego)
12. A skill I learn feels right. (task)
13. I do my very best. (task)

These questions will be rated on a 1-7 scale.

Demographic Questions

Please take a minute to tell me a little bit about yourself (circle the best answer or fill in the blank).

Age: 19-29 30-39 40-49 50+

Gender: Male Female

Race Category: Road- 1 2 3 4 Mountain- Pro 1 2 Cyclocross- 1 2 3

Primary Cycling Discipline: Road Mountain Cyclocross

How many years have you been competing? Road__Mountain_____Cyclocross___ _____

How many races did you compete in during the 2010 season (all disciplines) _____

How many races do you plan on competing in for the 2011 season (all disciplines) _____

How many races did you record a DNF result in 2010?_____

How many of those were due to mechanical failure (i.e. flat tire)?_____

How many races have you recorded a DNF result in 2011? _____

How many of those were due to mechanical failure (i.e. flat tire)? _____

Why did you get into cycling?

What other sports have you participated in in the past? What level did you participate at?

If you are having a bad race, how likely are you to quit? Why?

Questions for in person interviews:

What happened out there?

Why did you finish/quit today?

When did you know you were having a bad day? Was there something specific that happened?

Was today typical of you on a bad day?

Are you satisfied with your decision?

What (if anything) will you do differently for the next race?

APPENDIX B

IRB APPROVAL

MEMORANDUM

TO: Kimberly Fasczewski
IRB # 11-136

FROM: Lindsay Pardue, Director of Research Integrity

Dr. Bart Weathington, IRB Committee Chair

DATE: September 16, 2011

SUBJECT: IRB # 11-136: So you are having a bad day: gender. Goal orientation and in-competition attrition rate in competitive cyclists.

The Institutional Review Board has reviewed and approved your application and assigned you the IRB number listed above. You must include the following approval statement on research materials seen by participants and used in research reports:

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA00004149) has approved this research project # 11-136.

Please remember that you must complete a Certification for Changes, Annual Review, or Project Termination/Completion Form when the project is completed or provide an annual report if the project takes over one year to complete. The IRB Committee will make every effort to remind you prior to your anniversary date; however, it is your responsibility to ensure that this additional step is satisfied.

Please remember to contact the IRB Committee immediately and submit a new project proposal for review if significant changes occur in your research design or in any instruments used in conducting the study. You should also contact the IRB Committee immediately if you encounter any adverse effects during your project that pose a risk to your subjects.

For any additional information, please consult our web page http://www.utc.edu/irb or email instrb@utc.edu

Best wishes for a successful research project.

VITA

Kimberly Fasczewski was born in Janesville, WI to the parents of Charles and Janet Flynn and is the older of two children. She married Mark Fasczewski in 2003. Kimberly completed a BA in Political Science with a Law Studies emphasis from the University of Wisconsin-Milwaukee in 1998. After a 12 year career as a professional road, mountain, and cyclocross racer as well as a USA Cycling Level One Cycling Coach, Kimberly decided to return to academia to pursue her passion for the psychology of competition and sport. She earned a MS in Research Psychology from the University of Tennessee at Chattanooga in May of 2012. Her area of focus is Sport Psychology and her research interests include: gender issues in sports, goal orientation, performance motivation, doping, and athlete attrition rates. Kimberly currently teaches Intro to Psychology at the University of Tennessee at Chattanooga. She was also 2011 Provost Student Research Award winner at UTC. Kimberly will be pursuing a PhD in Sport Psychology at the University of North Carolina at Greensboro in the fall of 2012.